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AN UNDEVELOPED FIELD IN WATER WORKS MANAGEMENT

By Paul Hansen

Those who have had an opportunity to visit large numbers of small water works, as well as a variety of other small public utilities, more particularly in the smaller communities, cannot fail to be impressed with the generally unsystematic, unscientific and slipshod methods of operation. Among several hundred small water works, i.e., in cities under 25,000 population, with which the writer has acquaintance, there are but a very few where good operating records and financial accounts are maintained, and where a commendable technical skill is shown. The writer is obliged to say that these exceptions are very nearly all among the privately owned plants, though he is far from being committed to any definite stand on private versus municipal ownership.

The result of poor management is generally poor service, or good service purchased at cost much too high. The fault is not always, or even generally, that of the man in charge, because it is ordinarily not possible to obtain a man for the salaries offered, or even for the salaries that might reasonably be paid, who is a thorough water works expert; nor is it possible, in connection with the more complex water works installations, to find in one man the diverse knowledge necessary to secure the most effective and economical service in all departments. The most logical, the simplest, and the most readily available method of overcoming these difficulties is that of retaining the services of competent consulting engineers, on an annual basis, to supervise operation. As such work, once it is well initiated, can be carried on with but a small expenditure of time, it may be rendered at small expense, probably not exceeding $600 per annum. This procedure is not new or novel, but is seldom resorted to, whereas it should constitute a general custom. Large works do not need it, generally speaking, because such works are supervised by full time employes, who are specialists in various lines of water works design and operation; yet it is significant that, when difficult problems arise in connection with large water works, the management is quick to avail itself of outside expert services.

Three factors enter into the supervision which a consulting expert exercises, viz:

1. Operating records;
2. Financial accounts;
3. Technical skill.

Operating records relate to physical facts such as yield and quality of source of supply, performance of pumping stations, and the condition of the distribution system and reservoirs.

Financial records should permit of readily making a complete analysis of costs of operation and maintenance, and, to this end, should include fully itemized capital, maintenance, repair, replacement, sinking fund, depreciation and interest accounts. Unit costs should also be prepared on all material purchased and work done.

Technical skill should be possessed in a preëminent degree by the consulting engineer, that he may instruct those in direct charge in the proper manipulation of the water works equipment, and that he may correctly interpret the significance of the records that are maintained under his direction.

A plan such as outlined will not only improve operation, but will also improve water works design, for it will give consulting engineers an opportunity to ascertain how their own designs "work out," an opportunity strangely lacking at the present time. Design and operation must go hand in hand, for the engineer cannot be proficient in the one without being proficient in the other. If once this system is fairly tried, it is difficult to believe that it will not grow in favor.